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## A qualitative examination of barriers against effective medical education and practices related to breastfeeding promotion and support in Lebanon

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### ABSTRACT

**Background:** Insufficient breastfeeding promotion and support by physicians contribute to sub-optimal breastfeeding rates globally. Understanding setting-specific barriers against breastfeeding promotion and support from the perspective of medical students and addressing those that can be modified through undergraduate medical education may help improve learning outcomes, medical practice, and ultimately health outcomes associated with breastfeeding.

**Objectives:** We selected the underserved and under-supported public medical school in Lebanon to explore psychosocial, institutional, and societal barriers hindering effective preventative medicine practices using breastfeeding promotion and support as an exemplar case.

**Methods:** One-on-one semi-structured interviews, each lasting around 60 min, were conducted with medical interns (in Med III and Med IV) at their training hospitals. Interviews were voice-recorded, transcribed verbatim, coded, and analyzed thematically based on Theory of Planned Behavior.

**Results:** Interns ( $n = 49$ ; 96% response rate) completed the study. Five major themes emerged addressing barriers at various levels. At the health care system level at large, interns identified the predominant focus on pathophysiology and treatment rather than on disease prevention and health promotion as a barrier. At the level of trainees and their education experiences, interns reported limited and optional clerkship training in obstetrics/gynecology and in neonatology which contributes to their insufficient knowledge and low self-efficacy. Competing financial interests from infant formula companies and social pressures to promote infant formula were identified as two main barriers at the level of physicians and clinical practice.

**Conclusions:** Our work using breastfeeding as an exemplary case highlights how undergraduate medical education and its learning outcomes and how medical practices and patient behavior are highly intertwined with psychosocial, institutional, and social drivers and constraints. Re-evaluating the success of undergraduate medical curricula in light of overcoming these constraints and not only based on meeting national accreditation and certification guidelines might prove helpful in improving medical education and ultimately clinical practice.

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## Introduction

The role of undergraduate medical education in the classroom and during clinical clerkships extends beyond building future physicians' biomedical knowledge base and technical skills, to also include fostering the beliefs and attitudes necessary to provide kind, compassionate, and ethical clinical practice. Despite advancements in undergraduate medical education reforms globally, focus typically continues to be on the delivery of condensed content-driven curricula with less emphasis on identifying and addressing psychosocial constraints that might impede future clinical practice [1]. These constraints, such as negative beliefs and attitudes toward a medical subject matter (e.g., a therapeutic approach, a physiological process, a disease), are highly influenced by the students' academic and social experiences and are known to develop over time during or even before

medical school [2–4]. Therefore, attending to these constraints early on during undergraduate and graduate medical education provides a critical window of opportunity to influence future behavior before physicians become entrenched in their own workflow. In this paper, we use *breastfeeding promotion and support* as an exemplar case to better elucidate the potential of attending to often overlooked psychosocial variables, which may need to play a more prominent role in medical school education.

The importance of breastfeeding for maternal and infant health has been largely disseminated in guidelines by the World Health Organization and others [5–7]. However, knowledge uptake as well as breastfeeding promotion and support by physicians continue to be suboptimal, which contributes to low breastfeeding initiation, exclusivity, and continuation

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rates particularly in settings where access to lactation consultants is limiting [7–11]. Barriers against breastfeeding promotion and support are complex, spanning from national-level inadequate implementation of breastfeeding-friendly policies (i.e., regulation of physicians' marketing of infant formula) to individual-level knowledge gaps, negative attitudes, and lack of interest in the topic of breastfeeding [12–16]. Because these psychosocial constraints develop over time and influence intention, they can be identified and addressed through early interventions in medical schools in line with Theory of Planned Behavior (TPB) [2,17,18].

According to TPB, a very commonly used psychosocial framework in designing health education interventions, intention is an important predictor of future behavior which in our case is 'breastfeeding promotion and support' [17]. Intention, in turn, is influenced by one's beliefs and attitudes toward the behavior and toward other people's approval of this behavior, as well as by one's level of self-efficacy related to performing the behavior. Application of TPB has gained popularity in medical education research but remains to be leveraged in practice across medical schools [18,19]. Understanding setting-specific barriers against breastfeeding promotion and support from the perspective of the medical students and addressing those that can be modified through undergraduate medical education can help improve learning outcomes, medical practice, and ultimately health outcomes associated with higher breastfeeding rates.

Given the possible positive impact of this aforementioned approach on advancing undergraduate medical education, we have been conducting a series of studies to understand a wider range of variables, at Lebanon's *public* school, which are consequential in the breastfeeding space. Lebanon reflects an important context as it is one of many developing, under-researched and underserved countries, with only 40% of infants exclusively breastfed at 1 month postpartum and 2% at 6 months [20]. Despite physicians being highly influential on infant feeding practices in Lebanon [15,21,22], the undergraduate medical school curriculum limits breastfeeding education to basic mammary gland anatomy, lactation physiology, and associated health outcomes in infants. The affiliated training hospitals are not designated as Baby-Friendly and do not have policies that enforce the implementation of the majority of the Ten Steps to Successful Breastfeeding [21].

In the absence of adequate formal education and training related to breastfeeding promotion and support, we have recently shown that interns and residents at these training hospitals lack adequate breastfeeding-related knowledge and rely heavily on their informal social networks or ties to proactively learn about breastfeeding, such as learning from attending physicians whom they trust and 'like' and from family and friends

outside the medical field [21]. This can be problematic because it has been documented that family members in Lebanon, particularly the breastfeeding mother's mother, may discourage women to breastfeed and may spread misconceptions around breastfeeding [16,22,23]. Also, interview studies with Lebanese physicians and stakeholders in breastfeeding policy show many physicians continue to have negative attitudes and competing financial interests against promoting breastfeeding [14]. Given the documented influence of the trainees' social network and the potential trickle-down effect on their own beliefs and attitudes, we conducted this qualitative study as part of a larger research project to understand students' perspective on barriers to breastfeeding promotion and support among interns and physicians in Lebanon.

## Methods

### Sample

This study included a purposeful sample of medical interns enrolled at the only *public* medical university in Lebanon during the 2017–2018 academic year. Following the French model of medical education, the undergraduate medical curriculum spans over 7 years with a baccalaureate degree as pre-requisite, compared with the American model which consists of a 4-year program after an undergraduate degree. Interns refer to medical students rotating in clinical clerkships during their sixth and seventh year, which is equivalent to Med III and Med IV in the American system.

Participants were recruited at two affiliated hospitals in Mount Lebanon with already-established collaborations with our research center, and 49 completed the study ( $n=35$  in Med III and  $n=14$  in Med IV; the response rate was 96%). Written informed consent was obtained, and the study was approved by the Institutional Review Board at the University of California San Diego.

### Data collection

Study visits were conducted in a private office at the hospital where the participants were recruited. First, a structured survey was administered to collect demographics and to assess beliefs related to breastfeeding benefits, perceived knowledge about breastfeeding, and self-efficacy related to providing breastfeeding support. Survey results have been recently reported [21]. We then conducted one-on-one semi-structured interviews in Arabic each lasting around 60 min in an effort to understand trainees' perspectives on barriers against breastfeeding promotion and support. Interviews were audio-recorded and verbatim transcribed.

Our interview questions were developed by our research group based on a close read of related published

research and a multidisciplinary team of clinicians (a pediatrician, a gynecologist, a neonatology fellow, a gastroenterologist and a dietician) who are familiar with the breastfeeding landscape in Lebanon (Supplementary Table 1). Because of the exploratory nature of this work, we were intentional in keeping questions broad and in asking about ‘physicians’ in general without specifying a medical specialty to elicit as many ideas as possible. To ensure participants adequately comprehended the questions, we pilot-tested the questions with five individual representative of the population and made no changes to survey questions based on participants’ positive feedback. To ensure rigor and trustworthiness of the research, interviewers were trained academic researchers who did not personally know the study participants and did not have at any point in time any academic or clinical authority over participants (e.g., student-teacher relationships). Due to the confidentiality mandate, random numerical identifiers rather than personal identifiers were used in all data files.

### Data analysis

Interviews were transcribed verbatim, coded, and thematically analyzed [24] using MAXQDA (VERBI GmbH Berlin, 2018). First, two researchers read the transcripts independently to familiarize themselves with the content. Then, informed by Grounded Theory [25], together they developed an initial codebook and coded the transcripts over a period of 3 months. As new codes emerged, the codebook was revised, and transcripts were re-coded until saturation was achieved. Codes were combined into main themes, and key quotes representative of the themes were selected [25]. We were intentional in using open-coding in hopes of identifying themes that both encompass and extend beyond TPB constructs. The first cut of the interview data was an inductive analysis that allowed important themes to emerge ‘out of the data rather than being imposed on them prior to data collection and analysis’ [26]. We analyzed the qualitative data using a constant comparative analysis method [25] through checking and rechecking emerging themes [27]. This process of constant comparison ‘stimulates thought that leads to both descriptive and explanatory categories’ [28] and provides a deeper more nuanced understanding of the data. In order to ensure the trustworthiness of interpretations, member-checking procedures were carried out as emerging themes developed and were shared with participants [27].

## Results

### Participant characteristics

Among the 49 participants, the mean age was  $23.6 \pm 1.00$  years, and 28 (57%) were female. All participants

were Lebanese and unmarried without children. Their areas of residence spanned all 8 governorates (provinces) of Lebanon, with 34 (69%) residing in urban cities. Twelve participants (24%) reported considering pediatrics, obstetrics/gynecology [OBGYN] or family medicine as a specialty, six were undecided (12%) and the remaining were interested in various internal medicine specialties (cardiology, nephrology, gastroenterology), oncology, radiology, psychiatry, and emergency medicine.

### Qualitative themes

Five major themes emerged from the interviews which address barriers at a variety of levels: at the level of the health care system at large, at the level of trainees, and their education experience within the medical school, and at the level of physicians in their clinical practice.

#### *Predominant focus of the medical profession on treatment rather than on disease prevention and health promotion*

Most participants reported that the health care system, and thus the medical profession, is more focused on disease treatment than on prevention. Therefore, to prepare students for their future profession, the undergraduate curriculum and clinical training are focused on pathophysiology and medical treatment with little attention given to disease prevention and health promotion, with breastfeeding promotion as one example. To illustrate how interns defined their roles as disease treaters and struggled to identify the applicability of breastfeeding knowledge into their typical diagnosis processes, one 24-year-old Med IV female intern noted,

‘We studied a little bit about breastfeeding sporadically across a few courses, such as in pediatrics and gynecology. Here [at the hospital], we see [medical] cases mainly related to internal medicine and diseases with adults and the elderly...medications, diagnostic tests. If it happens that we have a mom who is breastfeeding and is admitted to the hospital for mastitis, then we talk about what we should do. But this is rare.’

When asked ‘why don’t you discuss the topic of breastfeeding with your patients frequently [during clinical training sessions],’ one Med IV male intern questioned the relevance of the topic [breastfeeding] to the type of cases he frequently sees, saying,

‘I don’t get a lot of insight if I ask her [the patient] how it was like to breastfeed or if she was formula fed when I’m taking her medical history. To me, if I have a patient who is 40 and has pneumonia, I would ask her about her actual illness but I won’t ask her to tell me how she fed her infants when she was 32 [years old].’

The majority of interviewees reported having received an overview of the topic of breastfeeding in class, including topics as: mammary gland anatomy, endocrine regulation of lactation, nutritional and

immunological properties of human milk compared to cow's milk, and medical treatment options for mastitis.

### *Limited and optional clerkship training in obstetrics/gynecology and in neonatology*

The second theme highlights the larger issue of lack of prioritization of effective breastfeeding promotion-related training at the hospitals. This is most evident in the fact that there is limited and optional clerkship training that interns receive in OBGYN and in neonatology. The majority of interns stated that rotating in the maternity ward is not mandatory such that uninterested interns could swap this rotation with their peers. A Med IV male intern shared,

'For example, we are obliged to rotate in the internal medicine ward because we have duties to see and examine internal medicine patients. But not in gynecology or pediatrics. Some people [interns] just avoid doing it... Suppose I have to be in a ward that I don't want to be in and that I don't like, for example, maternity [ward]. I can talk to a friend and switch floors with him. It's bad to graduate without knowing much about it [maternity care]. But many of my friends do that.'

Additionally, almost all interns considered training in OBGYN to be ineffective and limited in duration (2–4 weeks). Because training hospitals are not designated as 'baby-friendly', interns do not need to be trained on how to integrate breastfeeding-supportive policies into their practice. Although training hospitals do require mothers to consent in writing if they wish to provide infant formula to their newborns before discharge, policies that facilitate the implementation of the Ten Steps to Successful Breastfeeding are lacking. Examples of these policies include requiring all pregnant women be informed about the benefits and management of breastfeeding, helping mothers initiate breastfeeding within 1 h of birth, and inhibiting advertisement of infant formula to families. Indeed, when asked about whether there is a protocol in place requiring interns, residents or attending physicians to promote breastfeeding at the hospital, all interns answered with a 'no' or 'not aware of such a protocol if it exists'. One Med III-level female said, 'I feel like it is a personal effort. Those who want to do it [promote breastfeeding], do it, and those who don't want to, don't do it. There is no protocol or an obligation to do so, unlike other issues like checking for abnormal [vaginal] bleeding after delivery.' Indeed, interns' limited duties involved writing progress notes, as requested by OBGYN residents or attending physicians, with minimal access to and communication with patients.

### *Insufficient knowledge or low self-efficacy related to breastfeeding promotion and support*

Possibly as a consequence of the institutional barriers (Themes 1 and 2), the third theme relates to interns having insufficient knowledge or low self-efficacy,

two individual-level barriers against breastfeeding promotion and support in the future. The majority of interns reported not being familiar with the scientific literature related to breastfeeding health outcomes and with clinical guidelines related to the management of potential complications. The impact of this knowledge gap on effectively supporting mothers to breastfeed is illustrated by a quote from a Med III female intern,

'We should know more because our knowledge about breastfeeding is still not enough. All what we know is that breast milk is way better [than formula], in terms of its protein content, and that iron content is different than in cow milk. But people ask us, interns and residents, about these topics: How should breastfeeding be like? When should I stop breastfeeding... We should know more to explain more things to the patient even if we don't end up specializing in pediatrics.'

A low sense of self-efficacy to change mothers' mindsets was also commonly voiced, as reflected in this commonly noted idea, 'There are mothers that say since the beginning [before delivery] that they don't want to breastfeed. I've seen them during the rotation. There's a lot of them. There's no hope in actually trying [to convince them to breastfeed].' A lower sense of self-efficacy did not seem to be only related to mothers' preset breastfeeding intentions, but also to trainees' perception that breastfeeding is a challenging undertaking that is difficult to endure. For example, one Med IV male intern justified his self-doubt to effectively promote breastfeeding as follows, 'People have the tendency to go towards what is easier. And breastfeeding is not something easy. To wake up in the middle of the night, to place the baby on this breast and then on the other when she is tired... this is not easy.' Therefore, the second theme highlights modifiable personal barriers to effective breastfeeding-related clinical practices, such as knowledge gaps and decreased levels of self-efficacy, both of which can be improved by overcoming the larger institutional barriers to effective curriculum design and delivery.

### *Competing financial interests from infant formula companies*

Beyond the contribution of formal medical education to one's beliefs and attitudes and ultimately medical practice, interns are likely influenced by subjective norms and belief diffusion. Beliefs and attitudes are often aligned with those with whom individuals interact such as their peers, teachers, and clinical preceptors. Therefore, we sought to understand interns' perspectives on barriers they believed are limiting their supervising physicians from effectively promoting and supporting breastfeeding. Accordingly, the fourth theme emerged as the potential existence of competing financial interests from infant formula companies. Many interns claimed some pediatricians



and gynecologists receive financial incentives to promote different infant formula brands, without much governmental oversight and law reinforcement. As one Med III female intern noted, ‘Physicians should play a major role in promoting breastfeeding. But I believe, from what I hear, that the infant formula companies go from this gynecologist to that pediatrician, giving them gifts. Most physicians are not promoting breastfeeding.’ Another Med IV male intern noted reflecting this theme,

‘In Lebanon, corruption leads physicians to do that [to promote formula]. No one is supervising the physicians, and the relevant ministries don’t investigate. I think some pediatricians even have advertisement postings for infant formula products [in their clinics].’

In addition to implications to clinical practice, this influence of formula company practices seems to extend to interns’ training experiences as well. Some interns mentioned having participated in grand rounds related to early infant feeding given by either a pediatrics resident or an attending pediatrician at the hospital and believed physicians were sponsored by infant formula companies to market their products. Reflective of this group, one Med III female intern said

‘Many pediatricians are sponsored [by infant formula companies]. They give talks and they explain different components in breastmilk, it’s good for metabolism, it prevents allergies...and [they tell us] that’s what’s added in the formula...They bring [us] breakfast because they oblige us to attend.’

### **Social pressures to promote infant formula**

The last theme centers around social pressures physicians face to promote infant formula because promoting breastfeeding would mean supporting a practice against the social norm. A statement by one Med IV male intern reflects a common refrain around how this barrier might have a negative impact on one’s career,

‘[Pediatricians, family physicians and OBGYNs] are not promoting breastfeeding...When a physician graduates and he finds that people are running towards [infant] formulas, he needs to take a very difficult decision to stand in their way. He will lose a lot of patients. They will laugh at him. “Oh look at this [person], he wants me to breastfeed”. Or “Is he still [supporting]breastfeeding?”’

Interns also echoed that the bigger influence families and friends have on women’s decisions to breastfeed which might overshadow physicians’ own efforts to support breastfeeding. A Med III female intern compared the leverage physicians’ have in disease diagnosis and treatment compared to breastfeeding promotion by saying,

‘With heart problems or illnesses, people get scared so they listen [to their physicians]. But for topics like breastfeeding, each person does what they feel like doing. They listen more to what their neighbor or grandmothers say.’

When asked why a Med IV male intern felt physicians are not promoting and supporting breastfeeding, he responded, ‘I’m not certain but doctors don’t seem to be excited about this topic and the society does not allow them to [support breastfeeding]. Even the society itself is not interested in breastfeeding. It may be easier for them [the doctors] to just promote formula feeding.’ Collectively, we found medical interns at Lebanon’s public medical school identified a range of barriers against effective education and practices related to breastfeeding promotion and support, and these barriers were not only limited to the educational setting but also to the larger social environment in which these future physicians will practice medicine.

### **Discussion**

In this study, we used a qualitative approach to better understand obstacles against effective medical education and practices related to breastfeeding promotion and support in Lebanon from the perspective of 96% of the medical interns at the nation’s only *public* medical school. Our qualitative findings highlight the complex array of personal, institutional and social barriers that complement our quantitative results in the same cohort [21]. Test score results for these interns showed limited knowledge about breastfeeding basics (anatomy of the breast, physiology of lactation, clinical management of lactation, WHO recommendations) as well as low levels of self-efficacy, such as in the ability to explain the benefits and potential challenges of breastfeeding in a way that the patient understands [21]. Additionally, at the institutional level, interns were not learning about breastfeeding through a well-connected professional social network at the training hospitals (i.e., from attending physicians and nurses) but rather relied on informal personal relationships to learn (i.e., from family and friends who might not have a medical or healthcare-related educational background) [21]. Based on TPB, intention to support breastfeeding is influenced by one’s own attitudes toward breastfeeding, self-efficacy related to providing breastfeeding support, and extent of approval by one’s own influential circle to support breastfeeding. Combining our quantitative and qualitative findings [21], interns’ attitudes toward breastfeeding do not seem to be an obstacle. Instead, aiming to improve their self-efficacy (i.e., providing training to develop relevant counseling skills) and subjective norms (e.g., establishing a breastfeeding-supportive community of practice) may prove more effective. The alignment between the qualitative and quantitative results suggests that interns’ own reflections about barriers they face to effectively learn about breastfeeding are accurate and worth addressing early one before interns graduate and become more focused on their own medical specialties.

Beyond overcoming individual-level gaps in knowledge and in counseling skills through undergraduate medical education, we identified additional themes that extend beyond the TPB umbrella most likely due to our intentional use of open-coding of interview transcripts. For example, in order for the medical school to prepare students for successful careers in medicine, the curriculum currently focuses on pathophysiology and disease treatment, rather than on preventative medicine which breastfeeding promotion often falls under. Additionally, interns commonly echoed that the hospital setting itself limits physicians' ability to engage in health promotion because the physicians' duty toward inpatients is generally to treat diseases or in the case of OBGYN physicians, to ensure safe delivery of newborns. The debate about whether or not efforts need to be invested to expand prevention in health care is not new, particularly in developed countries like the USA [29]. This debate also extends to whether medical school curricula should emphasize homeostasis and health and should provide training on how to practice cost-effective health promotion. In Lebanon, similar to other nations, the answer largely comes down to whether it will be feasible to incorporate a prevention model despite the technological, cultural, and economic obstacles so deeply embedded in the current acute care model of health care [29]. Therefore, it seems any sustainable incorporation of breastfeeding education within the undergraduate curriculum requires discussions and leadership decisions around the role of medicine as a profession and consequently medical education at large. Implications to physician practices will encompass, not only breastfeeding promotion and support, but multiple other anticipatory health practices not currently emphasized in the curriculum such as promotion of mental health, nutrition, and physical activity [30–32].

Not only were the institutional barriers evident, but the sociocultural context seemed highly influential on physician practices. Perhaps unsurprisingly, many interns noted that women's decisions to initiate or discontinue breastfeeding are largely explained by the support, or lack thereof, from people close to them. This social pressure, documented by others in Lebanon as well [16,22,23], is perceived by interns as a roadblock and several worried that promoting health practices against the social norms might have repercussions on their careers. We propose the undergraduate curriculum begins to focus on and foster resilience skills against such and other social pressures [33], especially when social norms have the potential to impact ethical clinical practices. Indeed, consistent with others [14], ethical concerns were also raised about pediatricians and OBGYN's receiving financial incentives from infant formula companies to promote their products. While law reinforcement aspects of breastfeeding support are beyond our area of expertise,

the undergraduate medical curriculum might help alleviate this barrier by disseminating knowledge about relevant laws and regulations and by emphasizing medical ethics.

Beyond breastfeeding promotion and support *per se*, this study highlights how undergraduate medical education and its learning outcomes and also how medical practices and patient behavior are highly intertwined with psychosocial, institutional, and social drivers and constraints. Researching these drivers and constraints using one theoretical framework only such as TPB might not uncover the full picture and future studies might need to compare and combine several other theories such as social cognitive theory to confirm, refute, or expand our findings. Re-evaluating the success of undergraduate medical curricula in light of overcoming these constraints and not only based on meeting national accreditation and certification guidelines might prove helpful in moving the work forward in this important space. Moreover, work of this sort may also open the space for a larger dialogue around prevention in all its forms as the education students receive in medical school are critical in long-term practice.

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## Contributors

SM, AJD, LB, AF designed the study. SM, AF, and AAA contributed to data collection. SM and CM analyzed the data. SM, CM, and AJD wrote the first draft of the manuscript. All authors revised and approved the final manuscript.

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